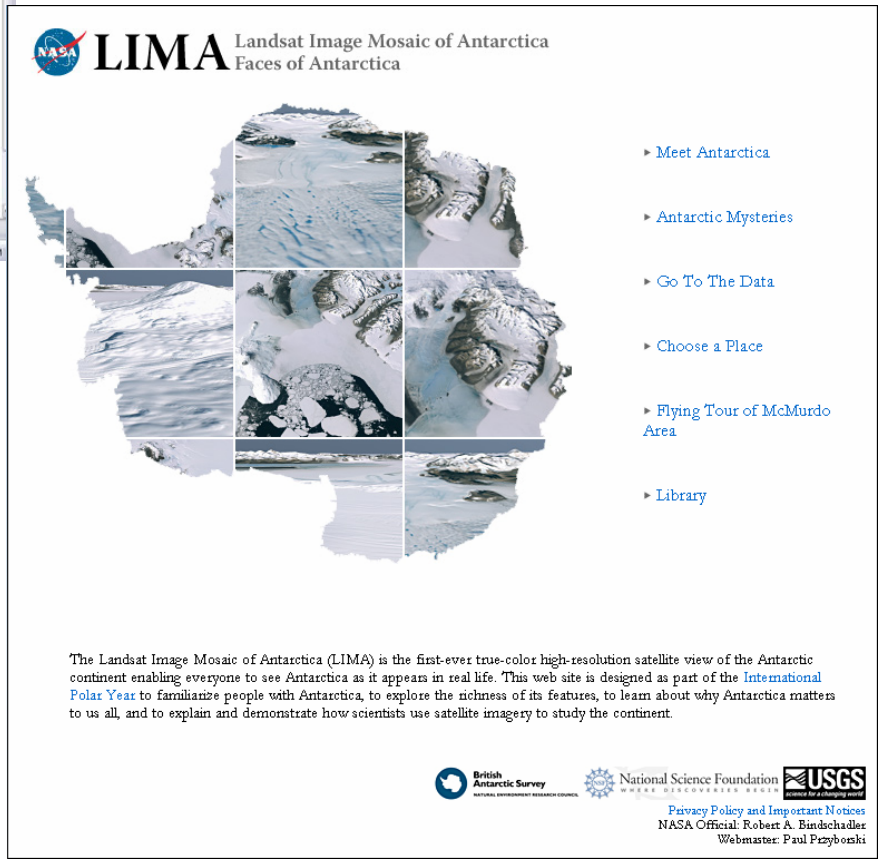
http://lima.usgs.gov

http://lima.nasa.gov



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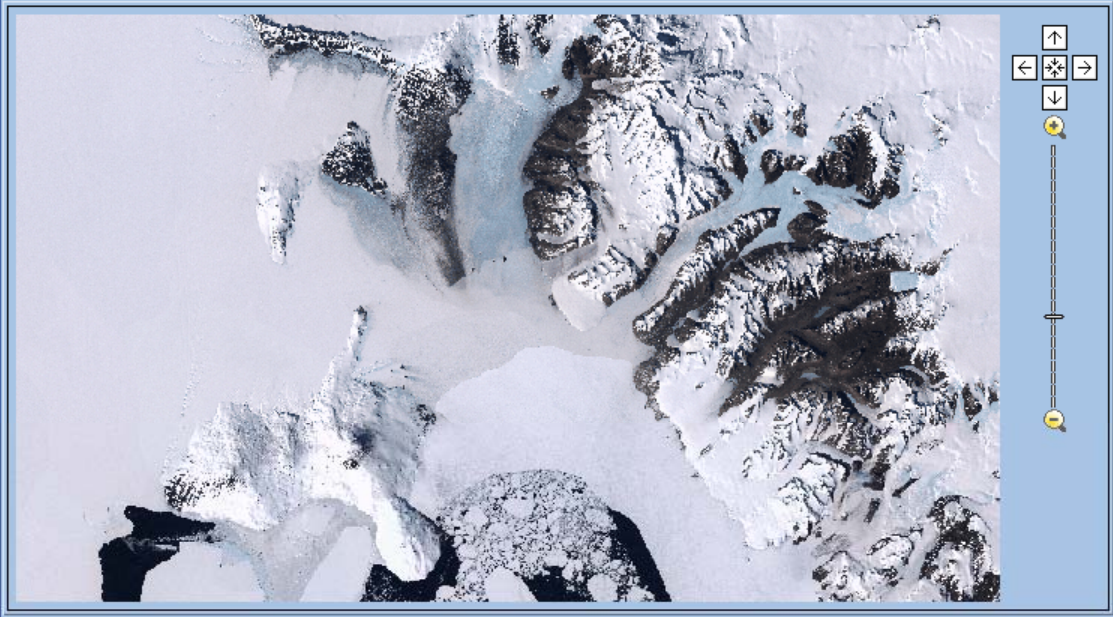
Landsat Image Mosaic Of Antarctica (LIMA)



In support of the International Polar Year (IPY 2007-2008), LIMA brings the coldest continent on Earth alive in greater detail than ever before through this virtually cloudless, seamless, and high resolution satellite view of Antarctica.

The U.S. Geological Survey (USGS), the British Antarctic Survey (BAS), and the National Aeronautics and Space Administration (NASA), with funding from the National Science Foundation (NSF), created LIMA from more than 1,000 Landsat ETM+ scenes.

As the first major scientific outcome of the IPY, LIMA truly fulfills the IPY goals. LIMA is an international effort, supports current scientific polar research, encourages new projects, and helps the general public visualize Antarctica and changes happening to this southernmost environment. Researchers and the general public can download LIMA and all of the component Landsat scenes at no charge.

Pan to view the continent and zoom in to see the stunning detail of this Natural-Color, Pan-Sharpened LIMA (bands 3, 2, 1). LIMA covers the entire continent except from the South Pole at 90 degrees south to 82.5 degrees south latitude, where Landsat has no coverage because of its near-polar orbit. To provide a continental view, the image above has LIMA 3, 2, 1 overlaying the MODIS Mosaic of Antarctica (MOA).

The opening view includes McMurdo Station, the largest research base in Antarctica. Located at the tip of Hut Point Peninsula on Ross Island, McMurdo has been continually operated by the United States of American since 1956. Ross Island is roughly 45 miles across. The flat, white areas are the Ross Ice Shelf and other sea ice off the coast of Antarctica. Also visible are the Erebus Glacier Tongue, Koettlitz and Ferrar Glaciers, and the Royal Society Range.

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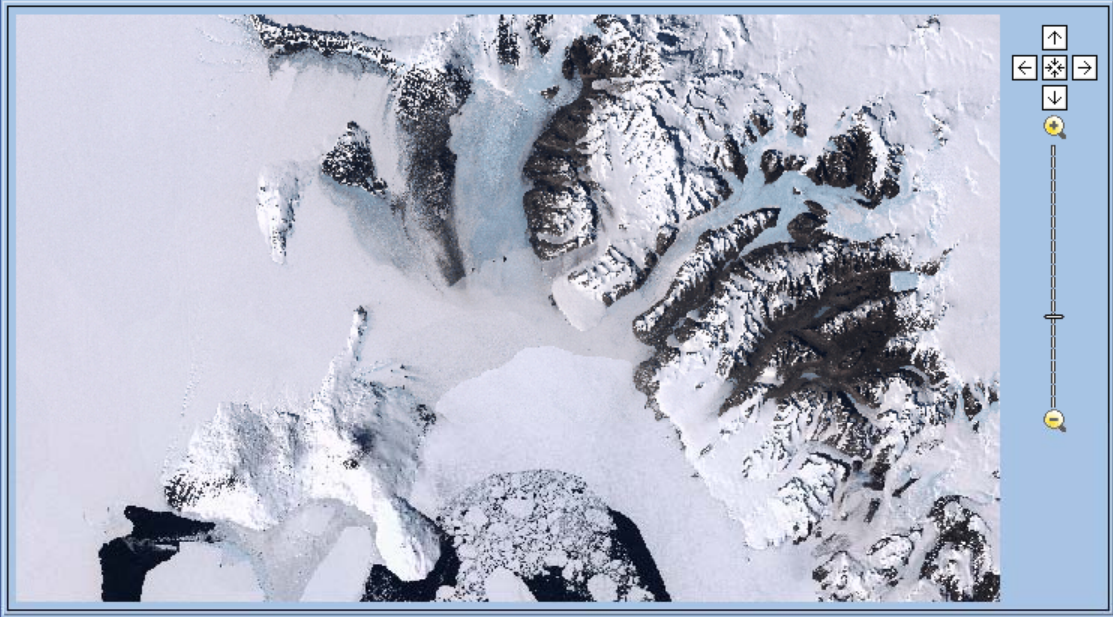

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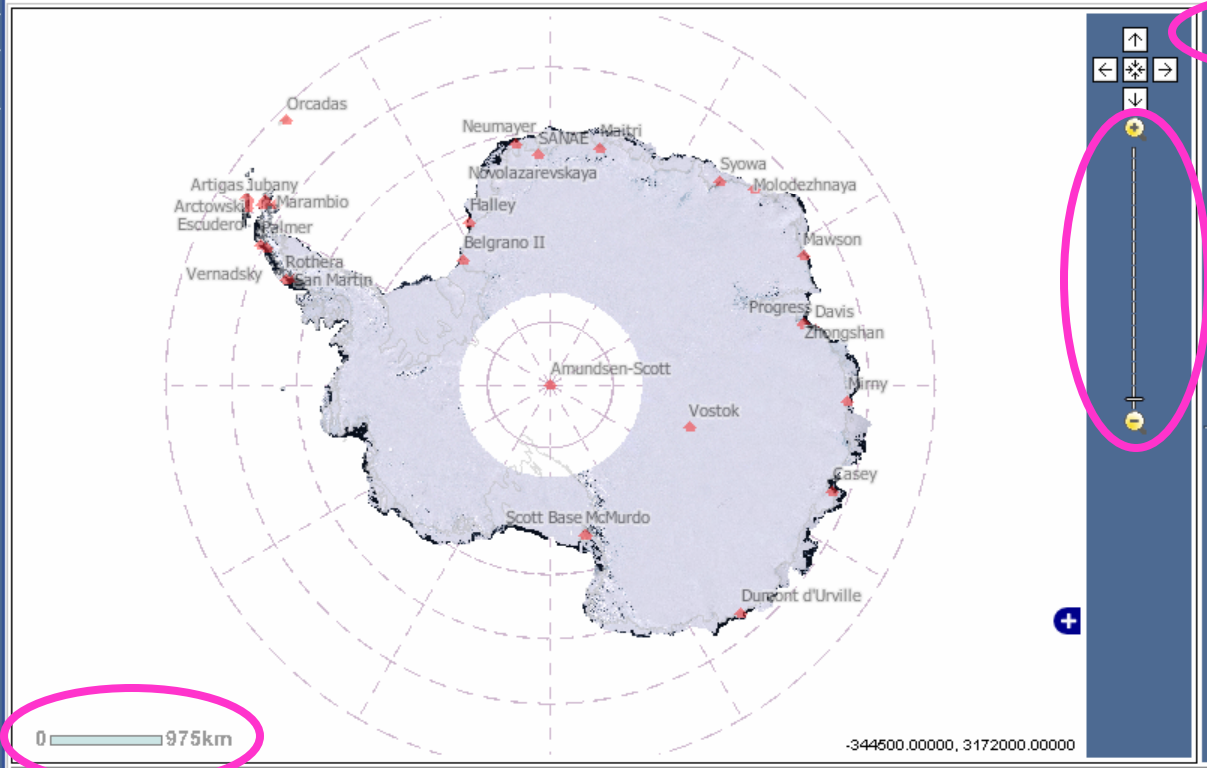

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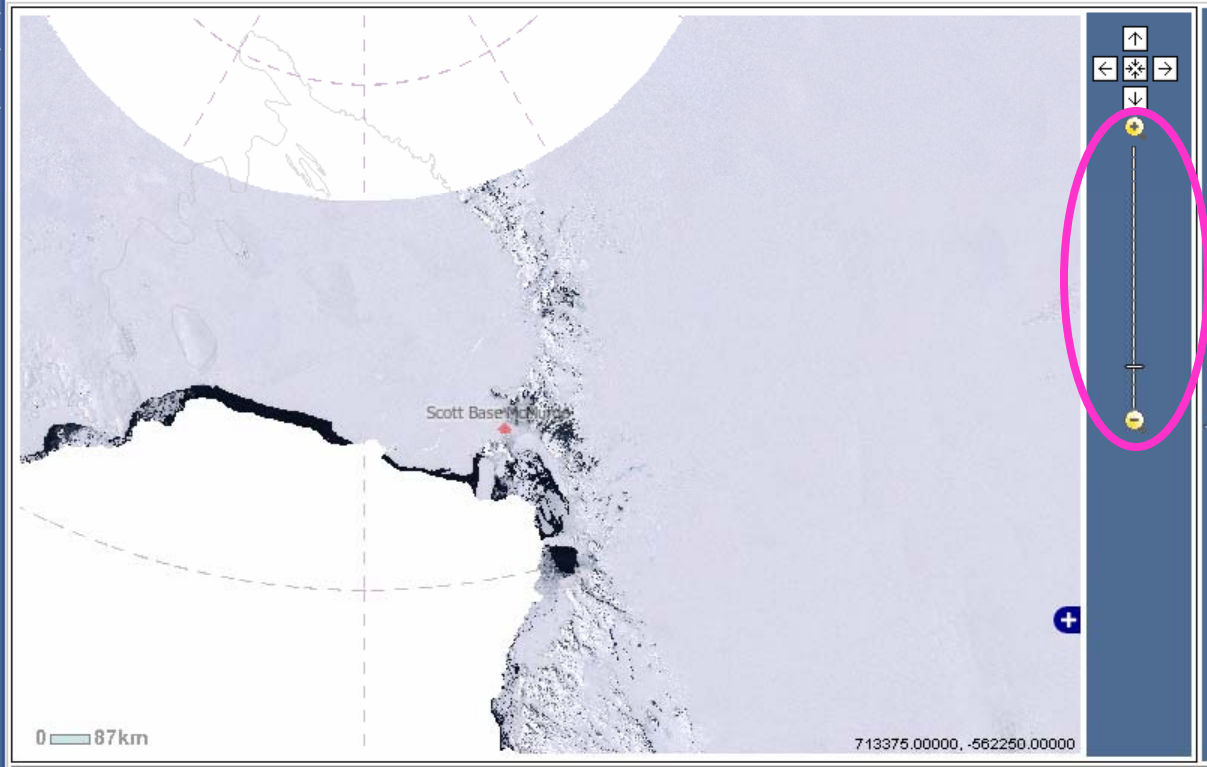

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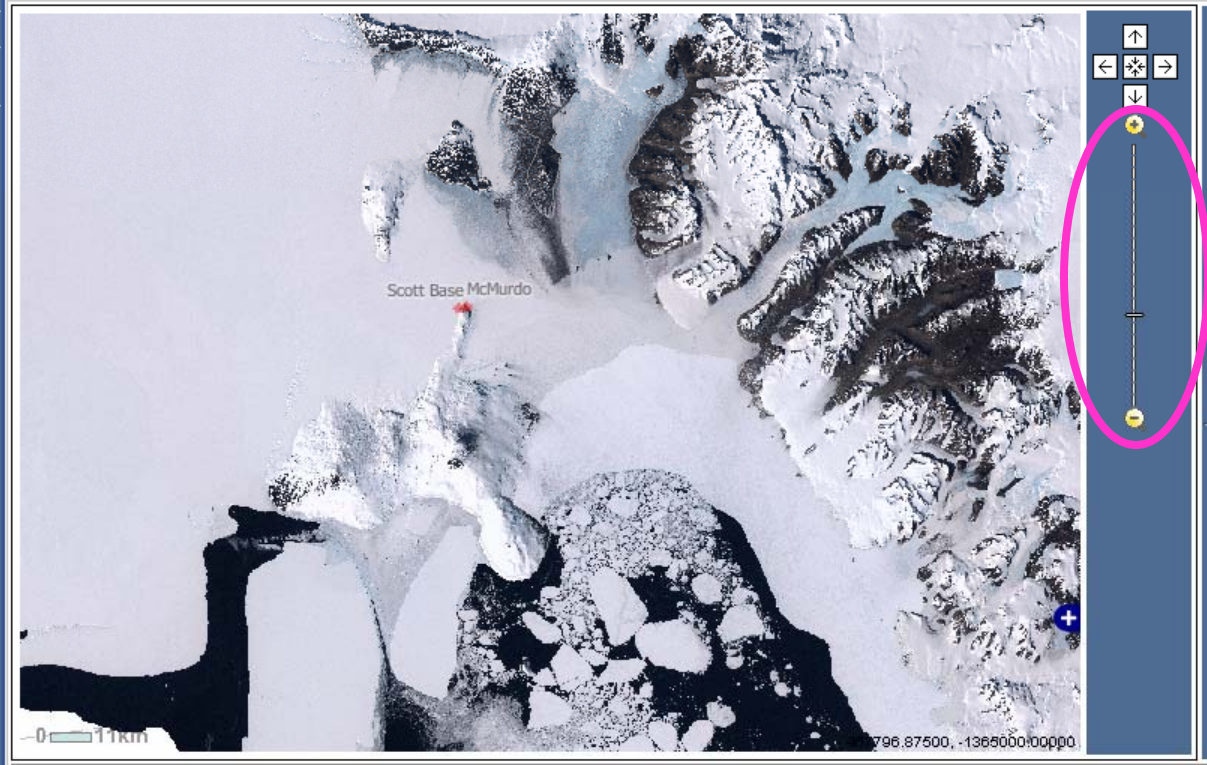

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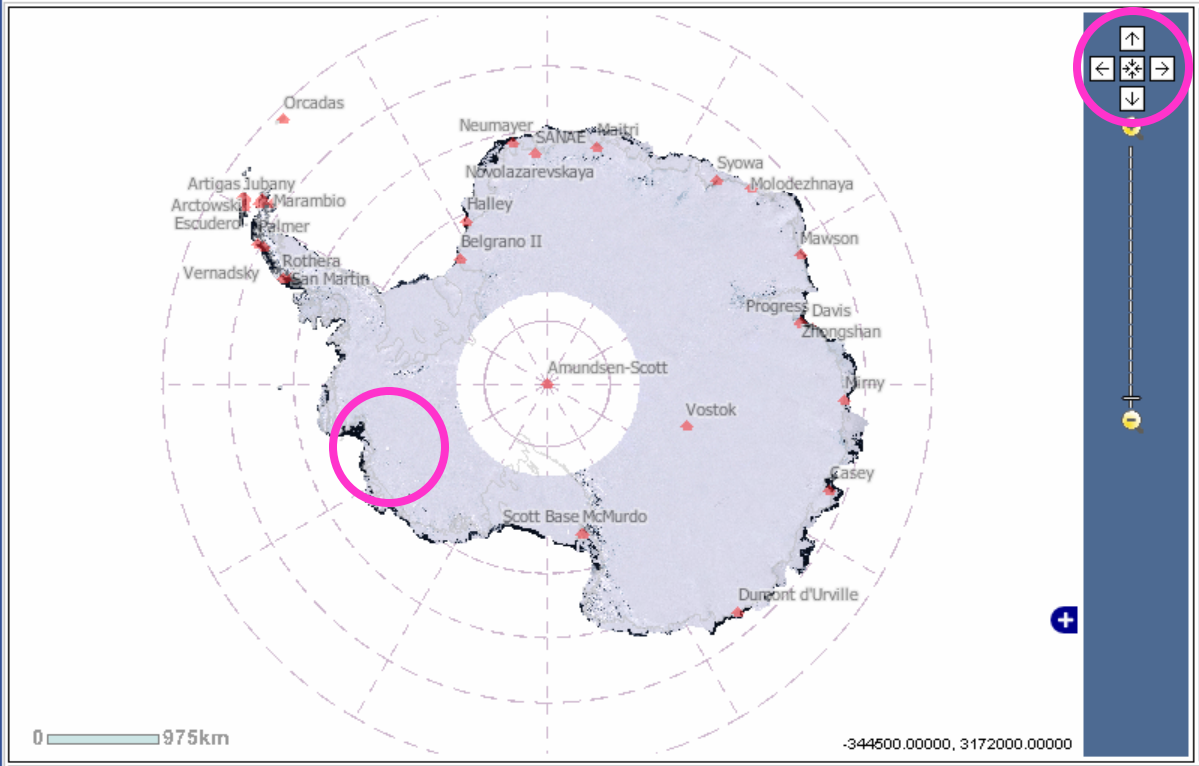

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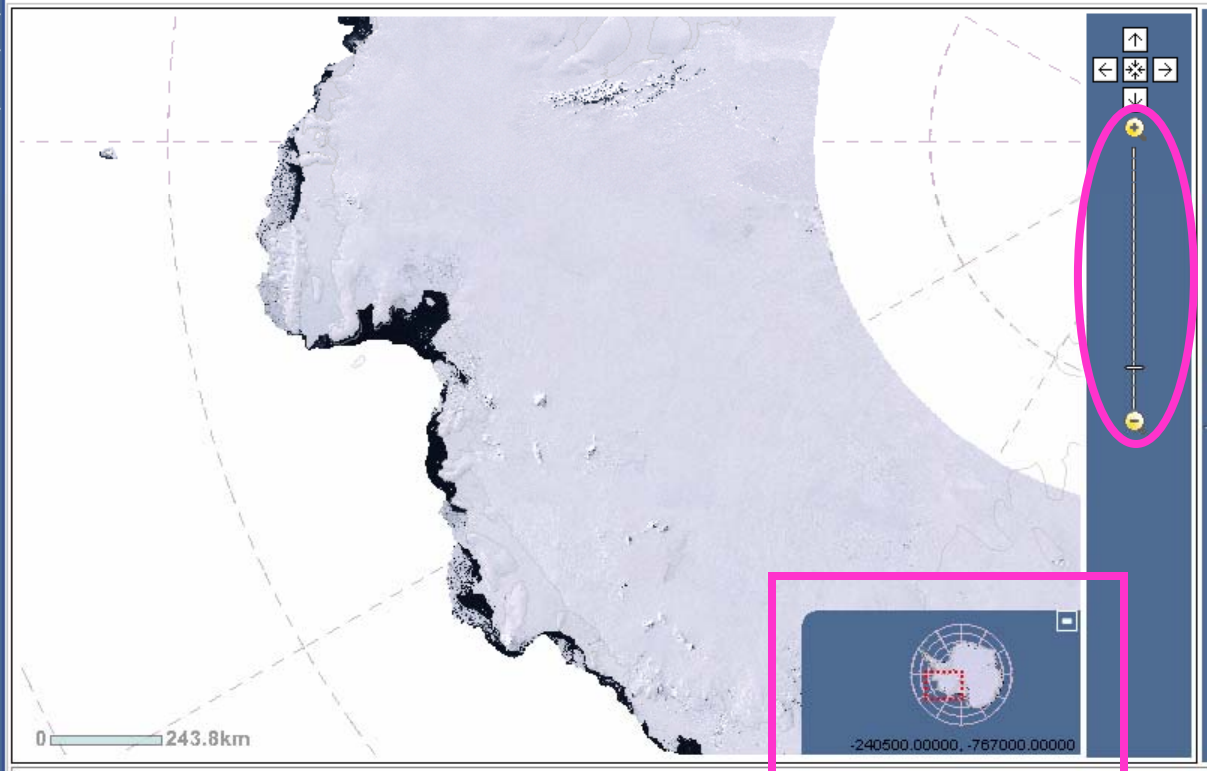

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- False-Color, Pan-Sharpened LIMA (bands 4, 3, 2)
  - 1X Stretch
  - 3X Stretch
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Documentation

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LIMA covers the entire continent except from the South Pole at 90 degrees south to 82.5 degrees south latitude, where Landsat has no coverage because of its near-polar orbit. To view a seamless image of the entire continent, choose the Center-Filled LIMA which completes the continent with imagery from the MODIS Mosaic of Antarctica.

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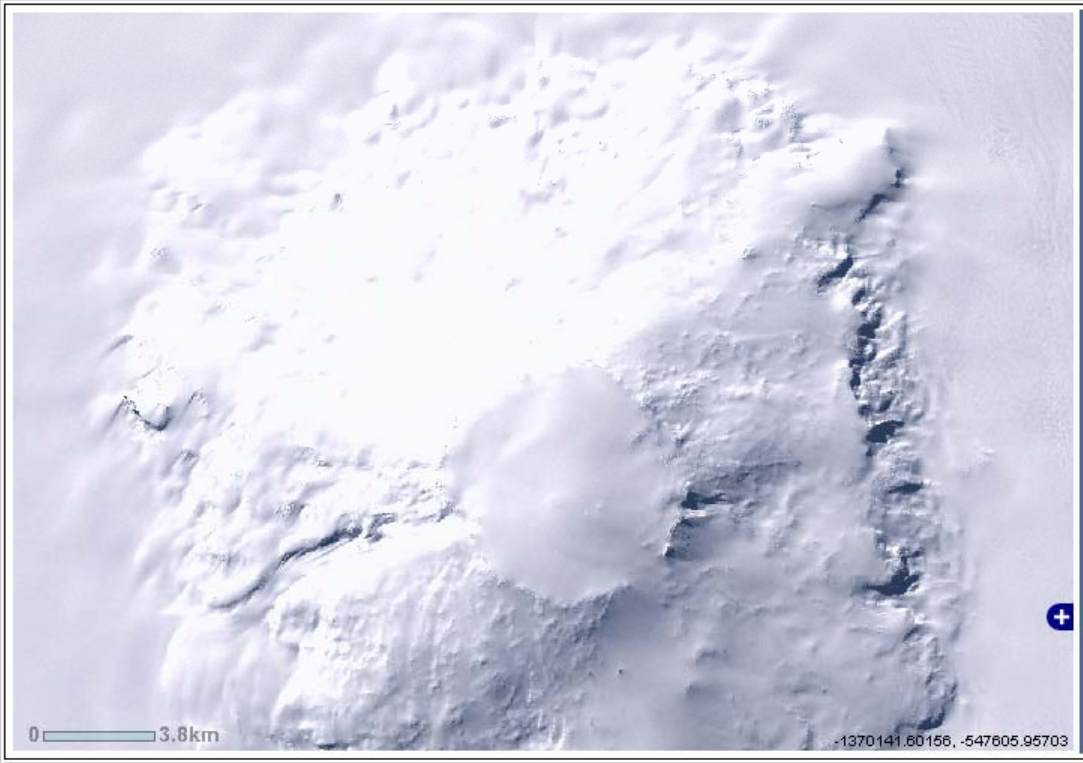

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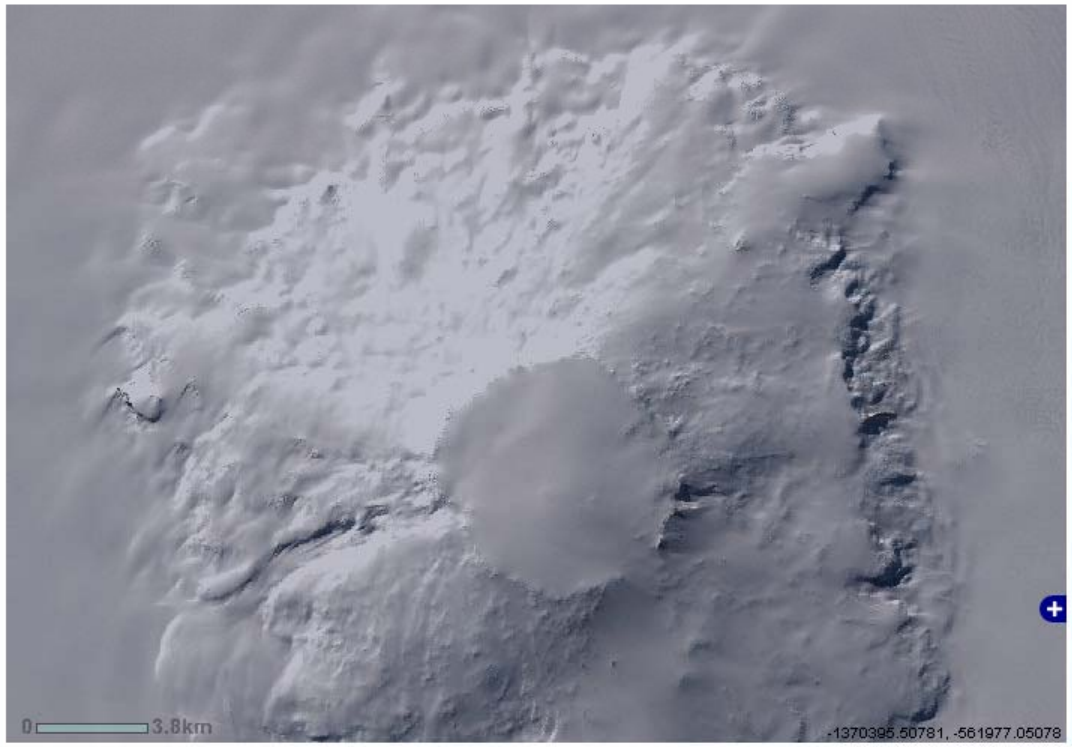

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Documentation

Enhanced Versions of LIMA
Both the natural-color and false-color, pan-sharpened versions of LIMA are available in different stretches to bring out features in Antarctica that would not normally be visible because of the high reflectance of snow and ice. In the same way that sunglasses soften the glare, these enhancements tone down the brightness of the entire image while preserving the color balance.

1x Stretch slightly darkens all of the mosaic to reveal areas of highest reflectance, such as snow-covered slopes that face the sun.

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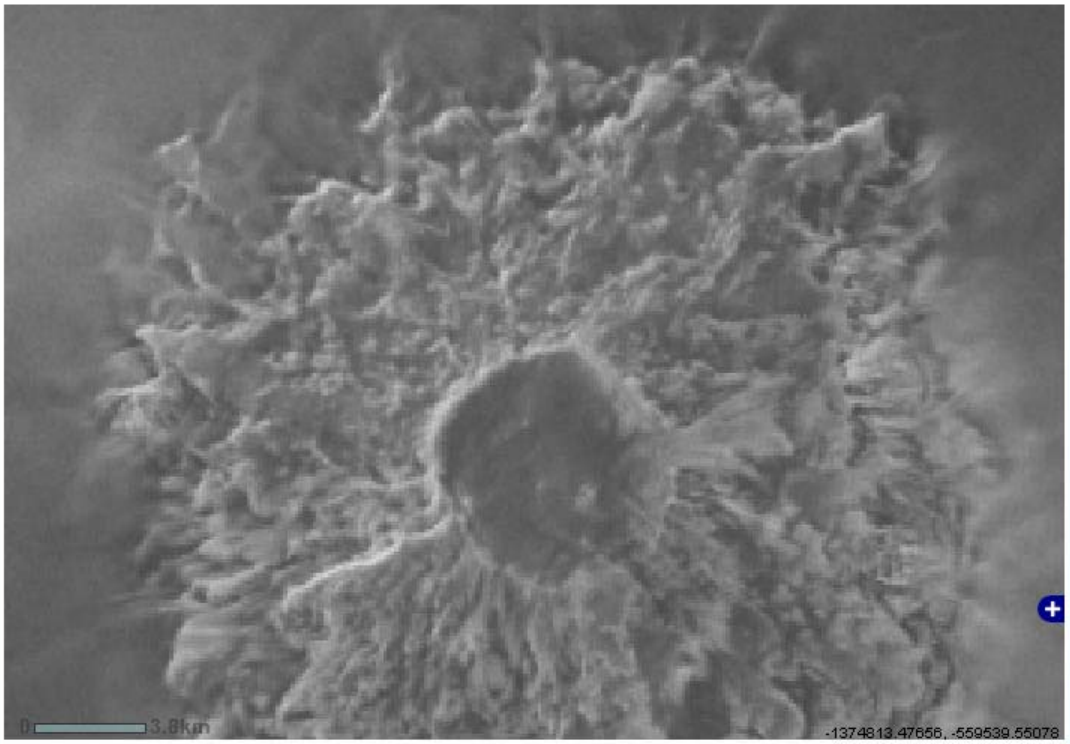

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RADARSAT Image Map of Antarctica
Released in 1999, the RADARSAT Image Map of Antarctica was the first high resolution map of the entire continent. RADARSAT Image Map of Antarctica is the product of RADARSAT-1 Antarctic Mapping Project (RAMP), a joint partnership between the Canadian Space Agency (CSA) and the National Aeronautics and Space Administration (NASA). This 125-meter spatial resolution grayscale mosaic is downloadable. The 25-meter spatial resolution tiles are copyrighted by CSA and are available through The National Snow and Ice Data Center (NSIDC) and Alaska Satellite Facility (ASF).

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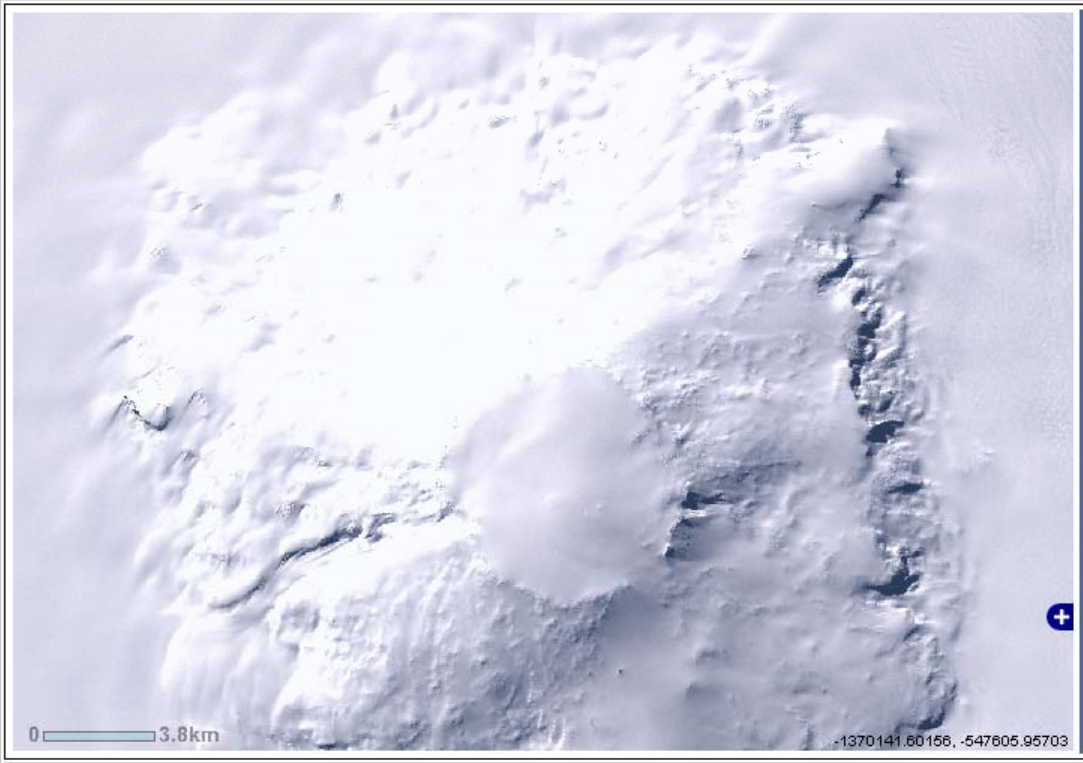

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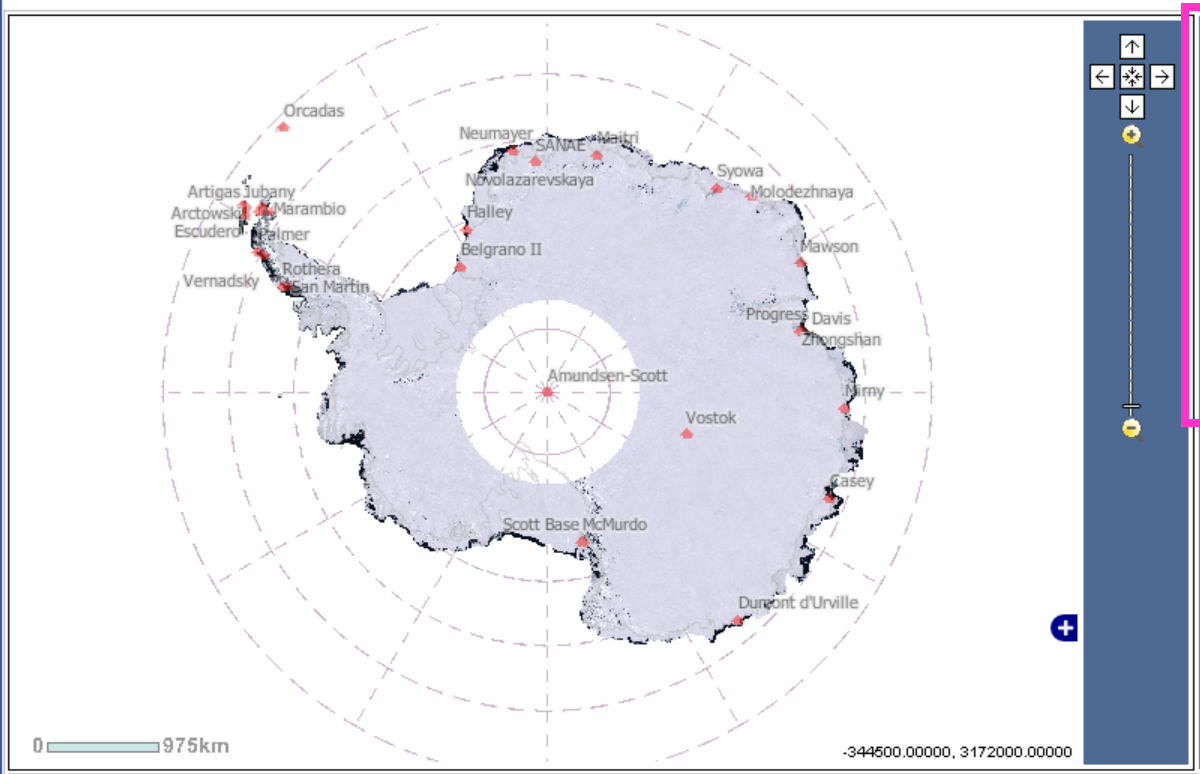

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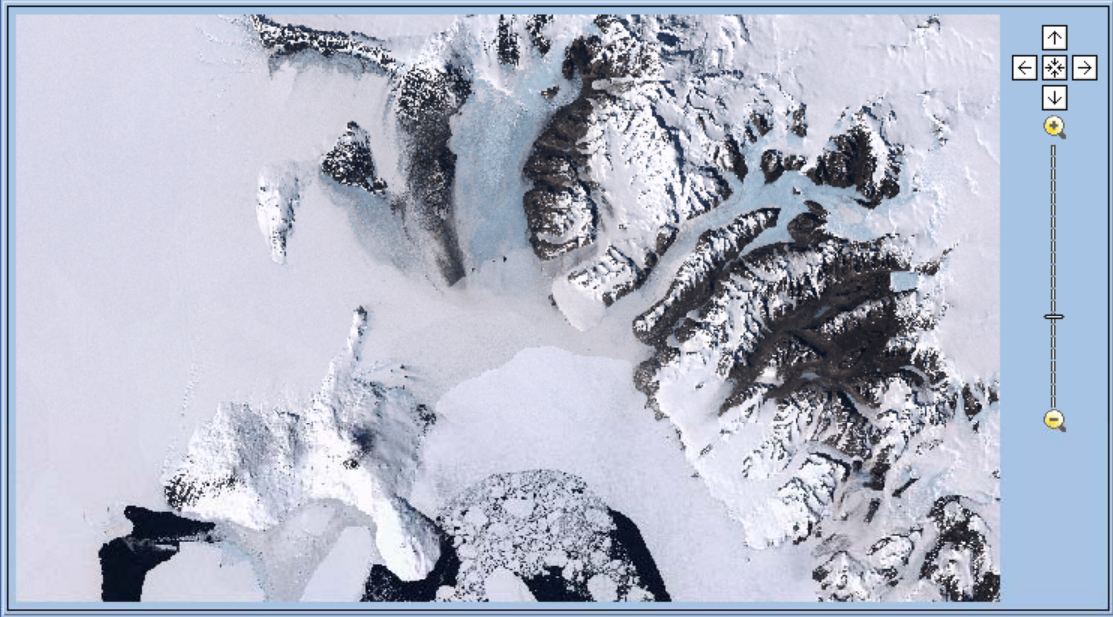

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LANDSAT IMAGE MOSAIC OF ANTARCTICA

created for the International Polar Year 2007-2008
sponsored by the National Science Foundation and the U.S. Geological Survey

In support of the International Polar Year (IPY 2007-2008), LIMA brings the coldest continent on Earth alive in greater detail than ever before through this virtually cloudless, seamless, and high resolution satellite view of Antarctica.

The U.S. Geological Survey (USGS), the British Antarctic Survey (BAS), and the National Aeronautics and Space Administration (NASA), with funding from the National Science Foundation (NSF), created LIMA from more than 1,000 Landsat ETM+ scenes.

As the first major scientific outcome of the IPY, LIMA truly fulfills the IPY goals. LIMA is an international effort, supports current scientific polar research, encourages new projects, and helps the general public visualize Antarctica and changes happening to this southernmost environment. Researchers and the general public can download LIMA and all of the component Landsat scenes at no charge.

Pan to view the continent and zoom in to see the stunning detail of this Natural-Color, Pan-Sharpened LIMA (bands 3, 2, 1). LIMA covers the entire continent except from the South Pole at 90 degrees south to 82.5 degrees south latitude, where Landsat has no coverage because of its near-polar orbit. To provide a continental view, the image above has LIMA 3, 2, 1 overlaying the MODIS Mosaic of Antarctica (MOA).

The opening view includes McMurdo Station, the largest research base in Antarctica. Located at the tip of Hut Point Peninsula on Ross Island, McMurdo has been continually operated by the United States of American since 1956. Ross Island is roughly 45 miles across. The flat, white areas are the Ross Ice Shelf and other sea ice off the coast of Antarctica. Also visible are the Erebus Glacier Tongue, Koettlitz and Ferrar Glaciers, and the Royal Society Range.

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These images are in the 'public domain' and can be used freely and without acknowledgement. However, credit to the Landsat Image Mosaic of Antarctica (LIMA) Project is greatly appreciated.

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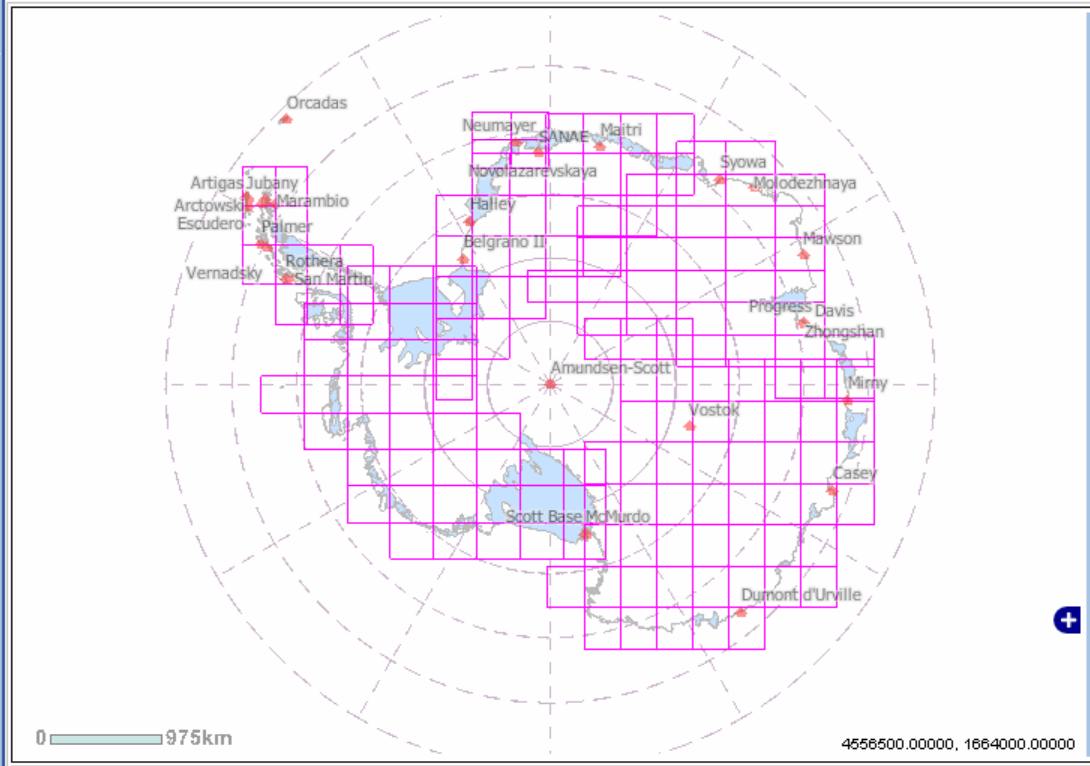

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- False-Color, Pan-Sharpened LIMA (bands 4, 3, 2)
  - 1X Stretch
  - 3X Stretch
- Center-Filled LIMA
- Original Landsat Scenes (NLAPS format)
- Processed Landsat Scenes (16 bit)
- 16-bit Intermediate LIMA

MODIS Mosaic of Antarctica (MOA)
- Low Contrast Stretch
- Regular Contrast Stretch
- Ultra-High Contrast Stretch

- RADARSAT Image Map of Antarctica

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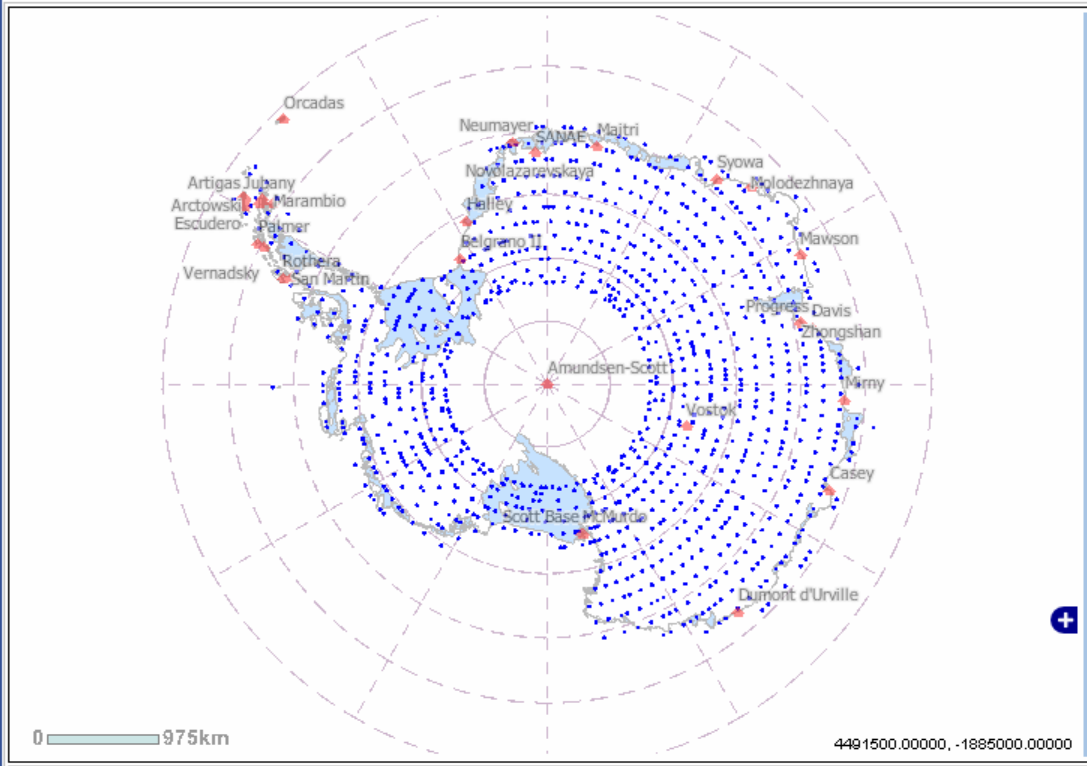

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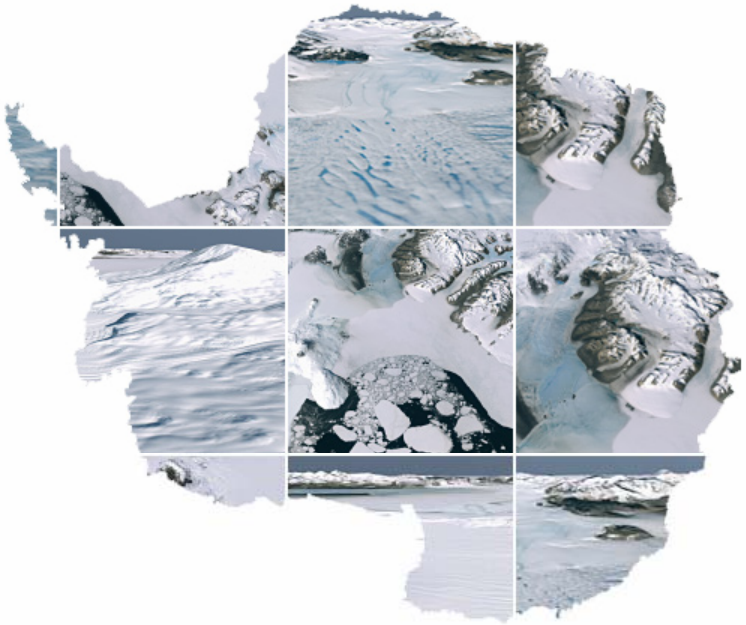
Original Landsat Scenes (NLAPS format)
Landsat Original Scenes (NLAPS format) are processed to Level 1Gt by the National Landsat Archive Processing System (NLAPS). Level 1Gt includes systematic radiometric and geometric correction combined with the use of a Digital Elevation Model (DEM).

LIMA
Landsat Image Mosaic of Antarctica
Faces of Antarctica



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- Choose a Place
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NASA Official: Robert A. Bindschadler
Webmaster: Paul Przyborski

NASA LIMA: Faces of Antarctica - Home - Mozilla Firefox

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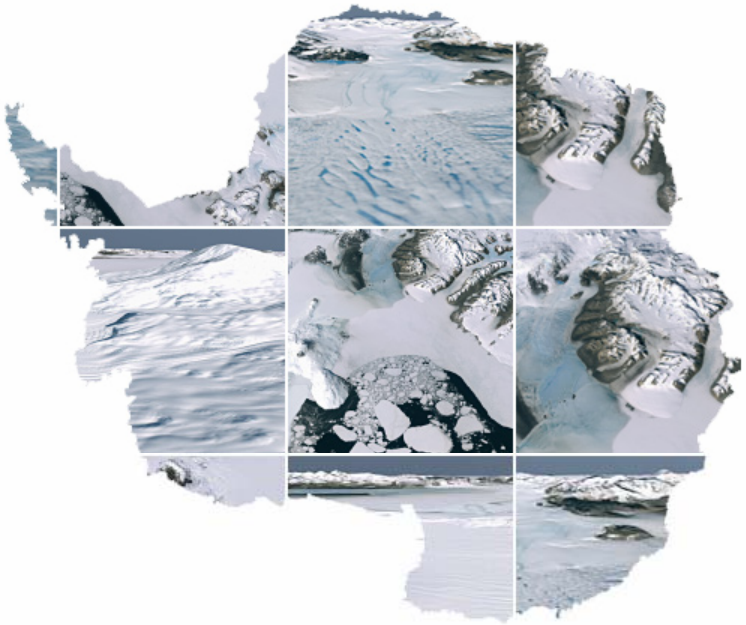
http://lima.nasa.gov/

usgs

LIMA Landsat Image Mosaic of Antarctica Faces of Antarctica



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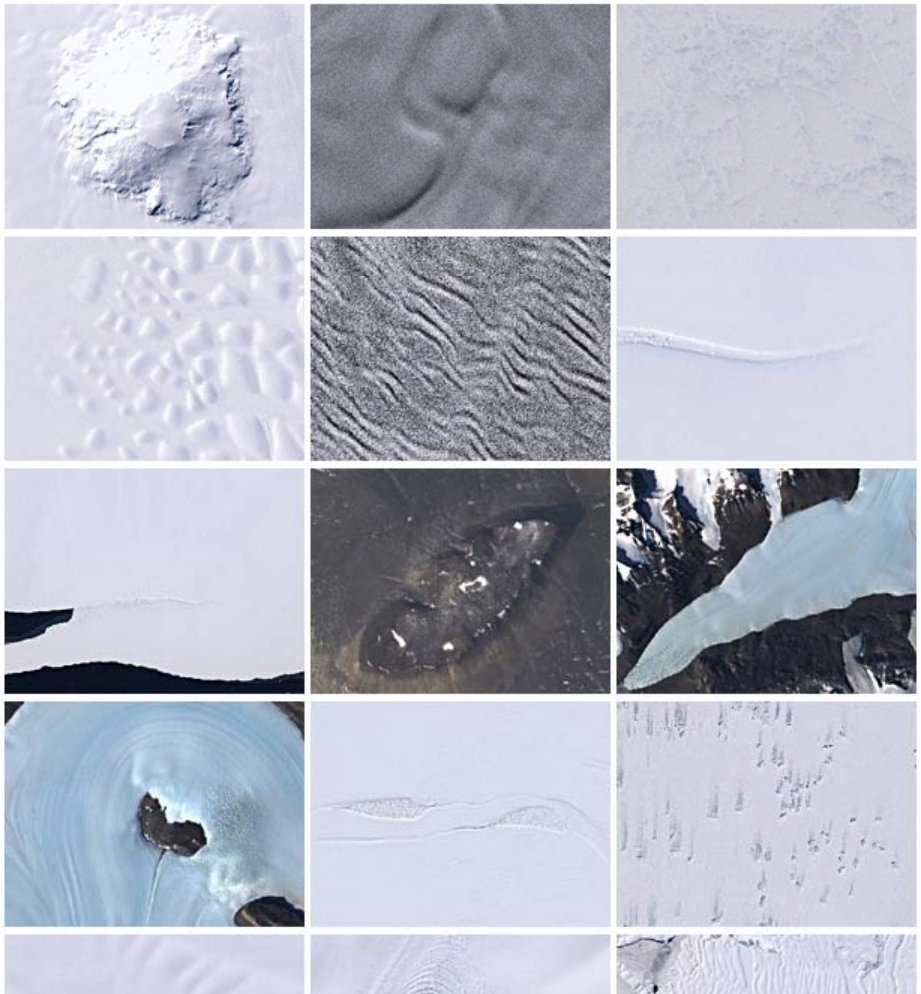
Antarctic Mysteries

Section

What is it?

Do you know what it is? Scientists use the Landsat Image Mosaic of Antarctica (LIMA) to get a better view and understanding of what is happening on the continent of Antarctica.

Look at the images below. Can you tell what they are? Take your best guess, then click the image to read the caption and learn more about each image!



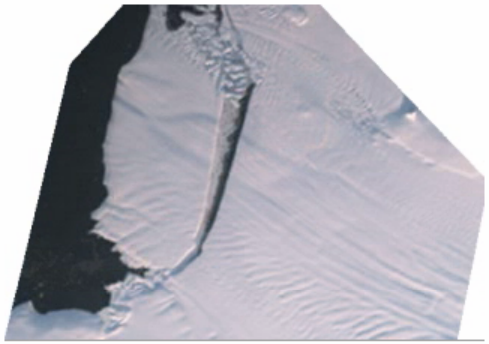
LIMA Landsat Image Mosaic of Antarctica
Faces of Antarctica

Antarctic Mysteries

Section

Is the Ice Moving?

If you were to stand on the surface of Antarctica, the ground beneath you would seem solid and secure enough. But your perception is not entirely true. Though the ice rarely moves fast enough for our human eyes to detect, the ice of Antarctica is actually on the move! When we view the surface from above and observe it over time, we begin to see that large blocks that are separated by large wide cracks (called crevasses) slowly move across the surface of the continent. One of the more powerful tools we have to observe the ice on the move are images from Landsat. We can use the images to measure the motion, detect the direction of the flow, and tell where the ice speed is fast and where it is slow.



Ice Movement - Pine Island Glacier

More on the LIMA Project

Want to learn more about the LIMA Project and Landsat imagery? Watch the video to listen to what a scientist has to say about the project.

Dr. Robert A. Bindschadler

Links

More on the Pine Island Glacier

Larsen Ice Shelf Collapse Video

Antarctic Mysteries

Section

Crevasse Tracking

Crevasses are huge cracks that form on the surfaces of the ice sheets when stresses are high. They move with the ice and are convenient natural markers that can help us detect the movement of ice using Landsat imagery. Scientists have used these natural markers to help them learn how fast the ice moves, that the ice changes speed over time, and that the speed of the ice movement also varies a lot from one place to another.

Scientist working over a crevasse

Activities

Crevasse Tracking Lesson Plan
(doc, 645.5 KB)

Documents

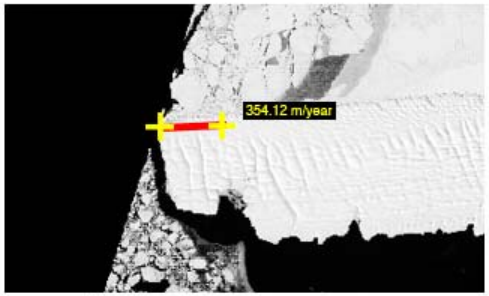
Landsat Lithograph of the Drygalski Ice Tongue
(pdf, 1.71 MB)

Results

VELMAP: Antarctic Ice Velocity Data

Now you try!

You can try to track crevasses on your own using the RCO Applet.
Try it now!



Crevasse Tracking Applet

How do scientists do it?

How do scientists do it? Watch the video below to learn more

LIMA Landsat Image Mosaic of Antarctica Faces of Antarctica

Choose a Place

This feature will give you a view of LIMA centered on a feature you choose.

First, you will be sent to a query form for the Geographic Names Information System for Antarctica where you can search nearly 14,000 official names by name, location, or other characteristics.

Click on one of the possibly multiple entries that satisfy your search, and you will be given a short description with location and other information about the feature. By clicking on the "View feature in Landsat Image Mosaic of Antarctica (LIMA)" link in the upper right, you will be taken to the USGS Antarctic Atlas web site with the image view centered on the feature you selected. If the LIMA imagery layer is not already turned on, open the Satellite Imagery tab and check the box labeled "LIMA Natural Color (Bands 3, 2, 1)". You also can turn on the geographic names (under the "Geographic Names" tab) to check the location of your feature.

The Landsat view feature does not work if the feature is farther south than 82.5°S, the southern limit of Landsat's view.

Try it now!

British Antarctic Survey NATURAL ENVIRONMENT RESEARCH COUNCIL
National Science Foundation WHERE DISCOVERIES BEGIN
USGS science for a changing world

NASA Official: Robert A. Bindschadler
Webmaster: Paul Przyborski

Search - Mozilla Firefox

File Edit View History Bookmarks Tools Help

http://geonames.usgs.gov/pls/gnispublic/f?p=gnispq:1:11947764933209048984::NO::P1_SHOW_ANTAR,P1_SHOW_ADV,P1_SHOW_FIPS55:Y,,

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Geographic Names Information System (GNIS)

Stop! Do not bookmark or copy/paste this URL before reading FAQs.

Query | Result | FAQs

Query Form For Antarctica

Feature Name:

Antarctic ID:

Feature Class: Definitions

Elevation:

Description:

Location (Bounding Box)

Location query format: DEC DMS

Equatorward Latitude:

Left Longitude: Right Longitude:

Poleward Latitude:

Reset Send Query

13,919 Antarctica features in the GNIS

Back to Basic Query

Advanced Search

Search FIPS55 Data

Search GSA/OPM Data

Important Links

GNIS Home

U.S. Board on Geographic Names

Old FIPS55 Query

Mapping Information

Click any field title for help in entering query data.

Click Frequently Asked Questions (FAQs) tab for important information.

*Elevations are from the National Elevation Dataset

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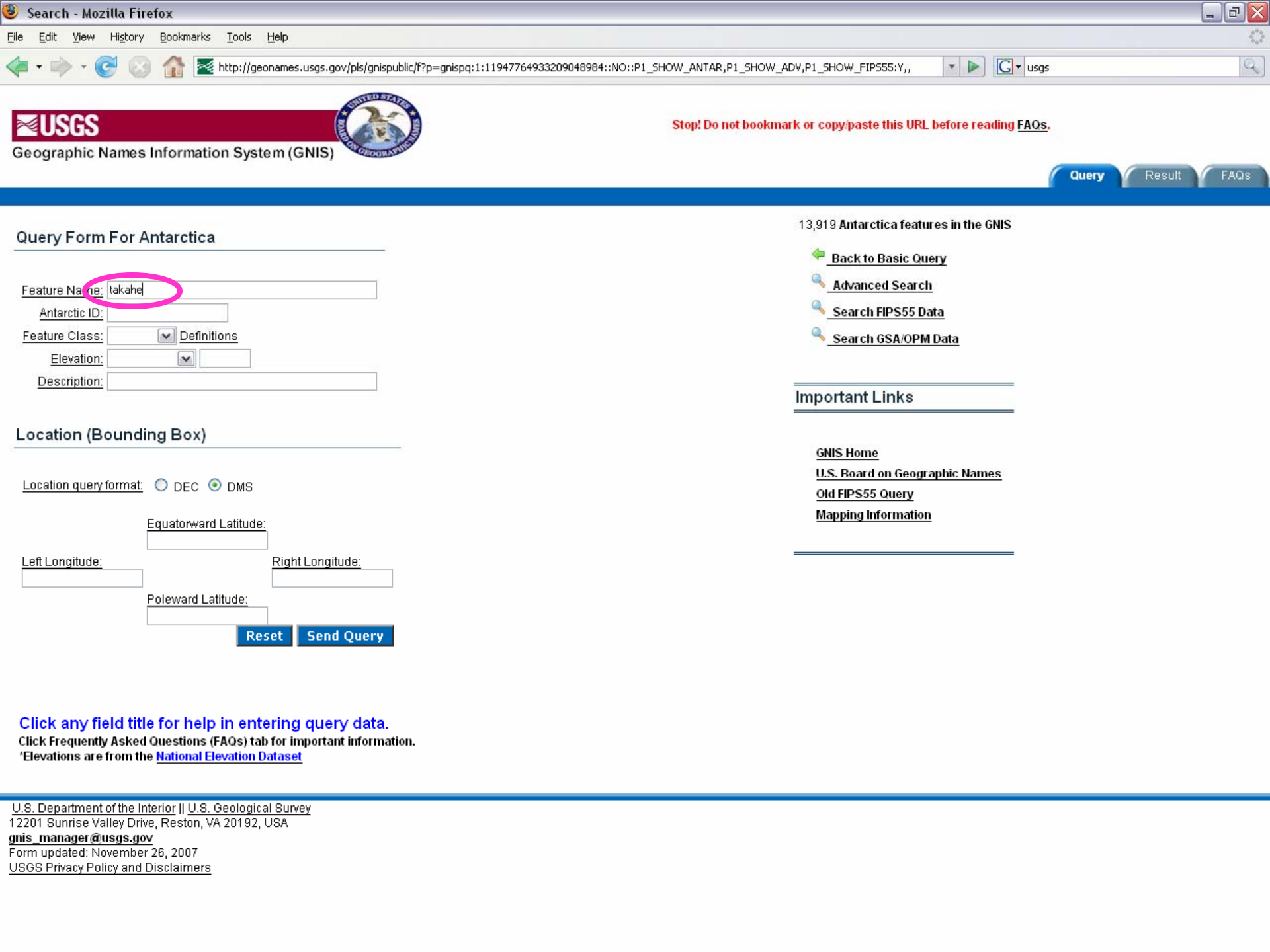
12201 Sunrise Valley Drive, Reston, VA 20192, USA
gnis_manager@usgs.gov

Form updated: November 26, 2007

USGS Privacy Policy and Disclaimers


Search - Mozilla Firefox
File Edit View History Bookmarks Tools Help
http://geonames.usgs.gov/pls/gnispublic/f?p=gnispq:1:11947764933209048984::NO::P1_SHOW_ANTAR,P1_SHOW_ADV,P1_SHOW_FIPS55:Y,,
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USGS
Geographic Names Information System (GNIS)
Stop! Do not bookmark or copy/paste this URL before reading FAQs.
Query
Result
FAQs
Query Form For Antarctica
Feature Name: takahe
Antarctic ID:
Feature Class:
Definitions
Elevation:
Description:
Location (Bounding Box)
Location query format: DEC DMS
Equatorward Latitude:
Left Longitude:
Right Longitude:
Poleward Latitude:
Reset
Send Query
13,919 Antarctica features in the GNIS
Back to Basic Query
Advanced Search
Search FIPS55 Data
Search GSA/OPM Data
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Result - Mozilla Firefox

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http://geonames.usgs.gov/pls/gnispublic/f?p=117:2:11947764933209048984::NO:::

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Query | Result | FAQs

Geographic Names Information System Feature Query Results (Antarctica Data)

Click the feature name for details and to access map services

Click any column name to sort the list ascending ▲ or descending ▼

Feature Name ▲	Antarctica ID	Class	Latitude	Longitude	Elevation (ft/m)	BGN	Modify Date
Takahe Nunatak	17803	Summit	771300S	1664800E	3609 / 1100	2000	-
Takahe, Mount	4967	Summit	761700S	112500W	/	1960	-

1 - 2

View & Print all Save as pipe "|" delimited file

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Antarctica Feature Detail

Antarctica Map

View feature in:

Landsat Image Mosaic of Antarctica (LIMA)

Antarctica ID:	**14967**
Feature Name:	**Takahe, Mount**
Class:	**Summit**
Latitude:	**761700S**
Longitude:	**112500W**
Description:	**A large, isolated snow-covered mountain (an extinct volcano) standing 40 mi SE of Toney Mountain in Marie Byrd Land. It is roughly circular, 18 mi across, and rises to 3,400 meters. This mountain was probably among those viewed from a distance by Admiral Byrd and other members of the USAS in plane flights from the ship Bear on Feb. 24 and 25, 1940. It was visited in December 1957 by members of the Marie Byrd Land Traverse Party, 1957-58, who applied the name. "Takahe," the Maori name for a flightless, almost extinct New Zealand bird, is the nickname of the U.S. Navy LC-47 aircraft whose crew resupplied the traverse party near this mountain and assisted by providing aerial reconnaissance to locate passable routes.**
Decision Year:	**01-JAN-60**

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Detail - Mozilla Firefox

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http://geonames.usgs.gov/pls/gnispublic/f?p=117:3:1194776493320904898 4::NO::P3_ANTAR_ID:14967

usgs

USGS

Geographic Names Inf

Query Result FAQs

Antarctica Feature D

Antarctica ID: 14967

Feature Name: Takahe,

Class: Summit

Latitude: 761700S

Longitude: 112500W

Description: A large, i mi across the USAS Traverse the U.S. locate pa

Decision Year: 01-JAN-60

Antarctica Map

View feature in:

Landsat Image Mosaic of Antarctica (LIMA)

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Form updated: November 26

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Atlas of Antarctic Research Viewer - Mozilla Firefox

File Edit View History Bookmarks Tools Help

http://lima.usgs.gov/antarctic_research_atlas/viewer.htm?BBOX=-1407385.3027:-5

Google

US Antarctic Research - Atlas of Antarctic Research (Return to US Antarctic Research) Return to

LIMA

Zoom

XY

Query

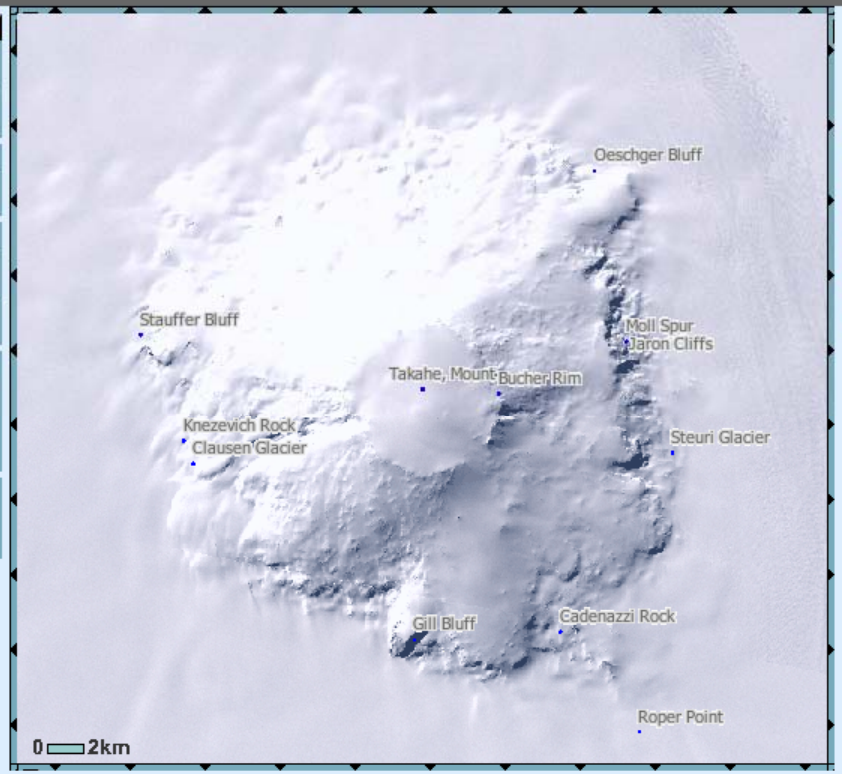
Tools

Documents

Map Coords

X: -1378105.29

Y: -581927.74



Reference

Geographic Names

Locations

Hydrography

Orthoimagery

Elevation

Satellite Imagery

Physiography

Transferring data from lima.usgs.gov...

End of Portals Demo